Data Papers

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Two centuries of masting data for European beech and Norway spruce across the European continent

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Abstract. Tree masting is one of the most intensively studied ecological processes. It affects nutrient fluxes of trees, regeneration dynamics in forests, animal population densities, and ultimately influences ecosystem services. Despite a large volume of research focused on masting, its evolutionary ecology, spatial and temporal variability, and environmental drivers are still matter of debate. Understanding the proximate and ultimate causes of masting at broad spatial and temporal scales will enable us to predict tree reproductive strategies and their response to changing environment. Here we provide broad spatial (distribution range-wide) and temporal (century) masting data for the two main masting tree species in Europe, European beech (*Fagus sylvatica* L.) and Norway spruce (*Picea abies* (L.) H. Karst.). We collected masting data from a total of 359 sources through an extensive literature review and from unpublished surveys. The data set has a total of 1,747 series and 18,348 yearly observations from 28 countries and covering a time span of years 1677–2016 and 1791–2016 for beech and spruce, respectively. For each record, the following information is available: identification code; species; year of observation; proxy of masting (flower, pollen, fruit, seed, dendrochronological reconstructions); statistical data type (ordinal, continuous); data value; unit of measurement (only in case of continuous data); geographical location (country, Nomenclature of Units for Territorial Statistics NUTS-1 level, municipality, coordinates); first and last record year and related length; type of data source (field survey, peer reviewed scientific literature, gray literature, personal observation); source identification code; date when data were added to the database; comments. To provide a ready-to-use masting index we harmonized ordinal data into five classes. Furthermore, we computed an additional field where continuous series with length >4 yr where converted into a five classes ordinal index. To our knowledge, this is the most comprehensive published database on species-specific masting behavior. It is useful to study spatial and temporal patterns of masting and its proximate and ultimate causes, to refine studies based on tree-ring chronologies, to understand dynamics of animal species and pests vectored by these animals affecting human health, and it may serve as calibration–validation data for dynamic forest models.

Key words: *fructification; mast fruiting; mast seeding; pollen; reproduction; synchrony; tree regeneration.*

The complete data sets corresponding to abstracts published in the Data Papers section in the journal are published electronically as Supporting Information in the online version of this article at http://onlinelibrary.wiley.com/doi/10.1002/ecy.1785/suppinfo.

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